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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,518

02/28/2006

Eduard Daniel Leendert Schmidt

294-208 PCT/US

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23869 7590 09/25/2009  
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EXAMINER

BAUM, STUART F

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

09/25/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/521,518	<b>Applicant(s)</b> SCHMIDT, EDUARD DANIEL LEENDERT	
	<b>Examiner</b> STUART F. BAUM	<b>Art Unit</b> 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 28 and 30-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28 and 30-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. The amendment filed 7/13/2009 has been entered.

***RCE Acknowledgment***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/13/2009 has been entered.

3. Claims 28 and 30-37 are pending.

Claims 1-27 and 29 have been canceled.

Claims 34-37 have been newly added and are drawn to the elected invention.

4. Claims 28 and 30-37, including SEQ ID NO:46 are examined in the present office action.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "increase" in claim 33 is a relative term which renders the claim indefinite. The term "increase" is not defined by the claim, the specification does not provide a standard for

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ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Amending claim 33, line 5, to recite --wherein expression of the RKS4 gene-- will obviate the rejection.

### ***New Matter***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 28, 30-32 and 34-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 28 and 30-32 have been amended and new claims 34-37 recite “increasing *organ formation*” or “decreasing *organ formation*”. Applicants fail to point to support for the phrase in the instant specification. Upon a cursory search of the specification, support could not be found. Applicants are required to point to support for “increasing *organ formation*” or “decreasing *organ formation*” or to amend the claims to delete the NEW MATTER.

### ***Scope of Enablement***

7. Claims 28 and 30-37 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of increasing organ size and increasing the rate

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of cell division comprising transforming a plant with SEQ ID NO:46 operably linked to a constitutive promoter or a method of decreasing organ size and decreasing the rate of cellular division comprising SEQ ID NO:46 operably linked to a promoter in antisense orientation does not reasonably provide enablement for a method for increasing or decreasing organ formation or method for providing pathogen resistance to a plant or plant cell comprising transforming a plant or plant cell with a RKS4 gene comprising SEQ ID NO:46 operably linked to a promoter in sense or antisense orientation. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claimed invention is not supported by an enabling disclosure taking into account the *Wands* factors. *In re Wands*, 858/F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988). *In re Wands* lists a number of factors for determining whether or not undue experimentation would be required by one skilled in the art to make and/or use the invention. These factors are: the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples of the invention, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, and the breadth of the claim.

The claims are drawn to a method for increasing or decreasing organ formation, organ size or rate of cell division of a plant or plant cell comprising transforming a plant or plant cell with a RKS4 gene comprising SEQ ID NO:46 operably linked to a promoter in sense or antisense orientation, respectively, or method for providing pathogen resistance to a plant

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comprising transforming a plant or plant cell with a RKS4 gene comprising SEQ ID NO:46 operably linked to a promoter.

Applicants disclose the *Arabidopsis* cDNA sequence for RKS4 as SEQ ID NO:46 (page 64-65). Applicants disclose RKS genes possess serine/threonine kinase activity (page 1, lines 28-31). Applicants disclose *Arabidopsis* and *Nicotiana tabacum* plants transformed with either an overexpression construct or antisense construct of the full length RKS4 cDNA operably linked to the 35S promoter. Plants comprising the overexpression construct exhibited increased size of organs and an increase growth rate while plants comprising the antisense construct exhibited a dwarf phenotype in which all plant organs showed a decrease in organ size and growth rate (page 106, lines 6-24).

The Office contends Applicants nor the prior art teach transforming a plant with a RKS4 gene produces an increase or decrease in organ formation or provides resistance to any pathogen. Given the lack of definition of “pathogen”, the Office interprets this term to encompass any pathogen which encompasses for example, bacteria, fungus or insect. The state-of-the-art teaches transforming a plant with a protein kinase produces unpredictable results. Christensen et al (2000, Cell 100:469-478) teach that the PID nucleic acid encodes a plant-specific serine-threonine protein kinase and that said protein kinase regulates both the “mitogenic effects of auxin in the control of lateral meristem outgrowth and its morphogenic effects during embryogenesis and vascular patterning” (page 475, left column, 2<sup>nd</sup> paragraph). Given the broad roles plant kinases play in plant biological processes, Applicants have not addressed how one controls pathogen resistance or organ formation by overexpressing the RKS4 cDNA.

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In the absence of guidance, undue trial and error experimentation would be required for one of ordinary skill in the art to screen through a multitude of plants that have been transformed with a construct comprising the RKS4 gene comprising SEQ ID NO:46 operably linked to a promoter in sense or antisense orientation and to screen the multitude of plants using a non-disclosed assay to identify those plants, if any, that exhibit increased or decreased organ formation or resistance to any pathogen.

Therefore, given the breadth of the claims; the lack of guidance and examples; the unpredictability in the art; and the state-of-the-art as discussed above, undue experimentation would be required to practice the claimed invention, and therefore the invention is not enabled.

8. Claims 28 and 30-37 are deemed free of the prior art, given the failure of the prior art to teach or reasonably suggest a method of increasing or decreasing organ size or the rate of cell division comprising transforming a plant with a RKS4 gene comprising SEQ ID NO:46 operably linked to a promoter in sense or antisense orientation, respectively.

9. No claims are allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart F. Baum whose telephone number is 571-272-0792. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached at 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Stuart F. Baum/  
Stuart F. Baum Ph.D.  
Primary Examiner  
Art Unit 1638  
September 22, 2009